Small Business Innovation Research/Small Business Tech Transfer

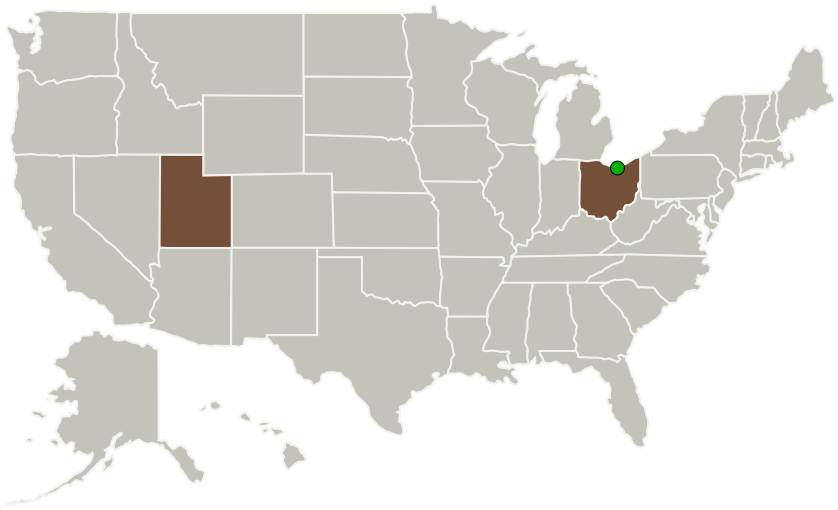
Advanced Li/S Batteries Based on Novel Composite Cathode and Electrolyte System, Phase II

Completed Technology Project (2014 - 2016)

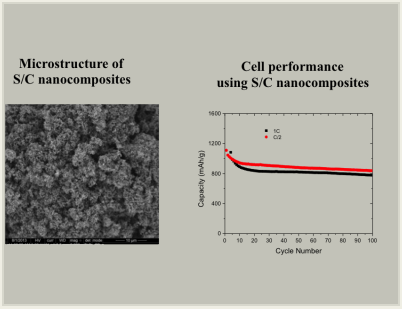
Project Introduction

Energy storage devices in many aerospace applications are facing unique challenges. Most of such applications, including remote surveillance, satellites, reusable launch vehicles, etc. depend on high-performance, highly specialized batteries. In Phase I, STI prepared and tested several sulfur-carbon nanocomposites of different formulations to identify parameters that affect composite performance characteristics. High efficient electrolyte solvent was prepared and demonstrated with high Coulombic efficiency and good cycling performance. During the Phase II, the composite's composition will be optimized further. Electrolyte solvent will be further optimized to increase the purity and Li ion conductivity. In parallel, cells with 500 mAh capacity will be designed and prototype batteries will be fabricated and characterized.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Storagenergy Technologies, Inc.	Lead Organization	Industry Women-Owned Small Business (WOSB)	Salt Lake City, Utah
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



Advanced Li/S Batteries Based on Novel Composite Cathode and Electrolyte System, Phase II Briefing Chart Image

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Primary U.S. Work Locations	
Ohio	Utah

Project Transitions

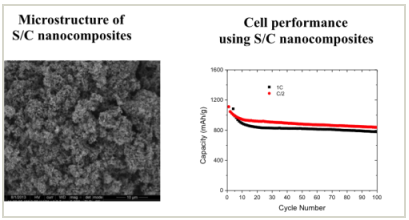
July 2014: Project Start

July 2016: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137463)*

Images



Briefing Chart Image
Advanced Li/S Batteries Based on Novel Composite Cathode and Electrolyte System, Phase II Briefing Chart Image *(https://techport.nasa.gov/image/128114)*

Final Summary Chart Image
Advanced Li/S Batteries Based on Novel Composite Cathode and Electrolyte System, Phase II Project Image *(https://techport.nasa.gov/image/134033)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Storagenergy Technologies, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

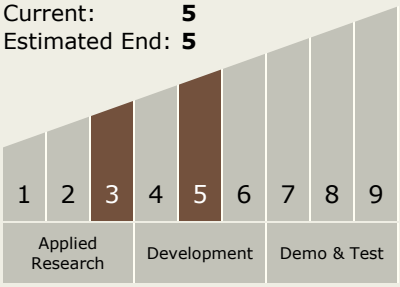
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Shun Wan

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Completed Technology Project (2014 - 2016)

Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.2 Energy Storage
    - TX03.2.1 Electrochemical: Batteries

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System